

# XMC1000 RadarSense2Go Framework for BGT24

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# RadarSense2Go Framework for XMC1000

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# Overview – BGT24

BGT24 is available in different derivatives. It is a Silicon Germanium MMIC (monolithic microwave integrated circuit) for signal generation and reception, operating from 24.05 GHz up to 24.25 GHz. Taking advantage from the Doppler effect it can be used for motion detection.

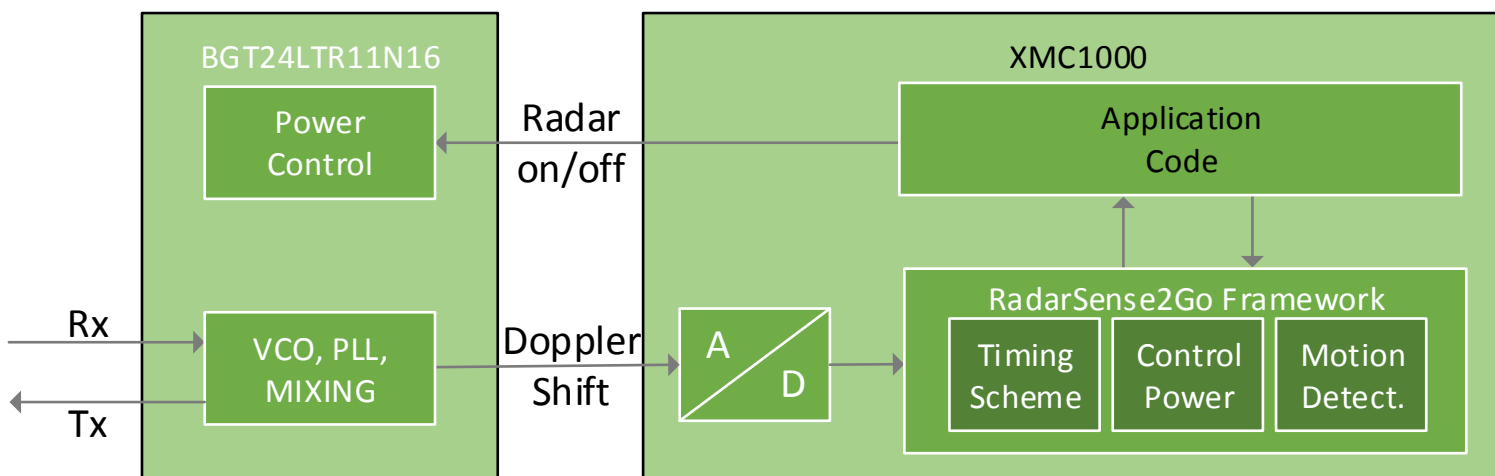
In its most simple setup it is used here, the VCO is stabilized within the ISM band by the BGT24 itself. No external PLL or microcontroller is needed for this purpose.

BGT24 transceiver is turned on/off by a signal on its input.

Once active, BGT24 provides on its output an analog signal having the corresponding component of the doppler shift frequency:

Speed	km/h	1	1.5	2	2.5	3	4	5	6	8	10
Doppler shift	Hz	44.4	66.7	88.9	111.1	133.3	177.8	222.2	266.7	355.6	444.4

# Overview – RadarSense2Go Framework



- › Optimized configurable Motion Detection
  - › Pre-processing interweaved with ADC sampling to extend DEEP SLEEP time.
  - › Configurable  $2^n$ -FFT for optimized application use case
- › Optimized Power Control
  - › Apply SLEEP and DEEP SLEEP for  $\mu$ C whenever possible
  - › Clock gating of ADC wherever possible
- › Easy configurable timing scheme optimized to cooperate with application
  - › Callbacks to application
  - › Application code executable in ISR and main context